

EFFECTIVENESS OF STUNTING EDUCATION TO PEERS: A SCOPING REVIEW

Sugiarto^{1,2*}, Sandra Fikawati³

¹Doctoral Student in Public Health, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

²Sekolah Tinggi Ilmu Kesehatan Harapan Ibu Jambi, Jambi, Indonesia

³Department of Nutrition, Faculty of Public Health, University of Indonesia, Depok, Indonesia

*Corresponding author: sugiarto33@ui.ac.id

ABSTRACT

Background: Stunting is a public health problem that has a long-term impact on the quality of future generations. In this case, adolescent girls as future mothers play a strategic role in prevention efforts. The low knowledge and awareness of adolescent girls about nutrition can increase the risk of stunting in children in the future. Peer-based stunting education is considered effective because communication between friends is easier to accept and can create positive behavior change. The purpose of this scoping review is to analyze the effectiveness of stunting education to peers.

Methods: The method used in this study is a scoping review by determining keywords using the PICO format, namely P (adolescents), I (peer education), C (zero), O (knowledge of stunting) which captures articles from national and international journals in English and Indonesian, using the PRISMA-ScR method. The databases used were PubMed and Google Scholar with the search limit of research study category and publication year 2015-2025. Found in the initial search as many as 1,598 articles and filtered so that 7 articles were synthesized.

Results: Of the 7 studies identified, peer education was shown to increase knowledge about stunting by 34-65% and promote behavior change such as increased consumption of nutritious foods. Effective mechanisms include the use of digital media and participatory approaches. Key challenges include limited peer capacity in technical materials and infrastructure access gaps in remote areas.

Conclusion: Stunting education conducted through a peer approach significantly improves adolescent knowledge.

Keywords: Education, peers, stunting, adolescents, scoping review

INTRODUCTION

Stunting remains a significant public health problem in Indonesia with a high prevalence of 21.5% by 2023 (Kemenkes RI, 2024). This problem not only affects children's physical growth, but also affects their cognitive development and future productivity (Kemenkes RI, 2020). Efforts to reduce stunting need to be made upstream to reduce the prevalence of stunting in order to prevent negative impacts in the future (Zakiyanpri et al., 2024).

Reducing stunting rates must begin with comprehensive and sustainable prevention efforts. Prevention of stunting is not only done when the child is born, but must start from

adolescence, preconception, pregnancy, to the first thousand days of a child's life. Prevention steps include fulfilling optimal nutrition for adolescents, pregnant women, and toddlers, providing education about healthy eating patterns, and access to quality health services (Kemenkes RI, 2020). Adolescent girls play an important role in stunting prevention efforts, as they are future mothers who will influence the nutritional status of their children in the future (Nugraheni, 2024). One of the efforts that can be made in adolescent girls so that later the children they give birth to do not experience stunting is the fulfillment of good nutrition during adolescence and understanding of stunting (Zakiyanpri et al., 2024). However, there are still many adolescent girls who have not received adequate information and

education about nutrition and stunting. Efforts that can be made to increase adolescent understanding are to provide education (Nugraheni, 2024).

Peer-to-peer education is an effective strategy in improving adolescents' understanding of nutrition and stunting. This is because adolescents tend to receive information more easily from their peers who are considered to have similar experiences, language and perspectives. This approach creates a more relaxed and open communication atmosphere, allowing for more active and participatory discussions. In addition, peer education can also build mutual trust and encourage more natural behavior change (Black, R., 2013; Matahari & Suryani, 2022).

The increase in stunting knowledge through peers is reflected in the results of Suryani et al (2022), who found that the peer education method was effective in increasing the understanding of stunting and nutrition of adolescent girls, especially in the early stages of the intervention. Research by Lubis et al (2022) showed that health education interventions through peer group education methods were effective in increasing adolescents' knowledge about stunting. Research by Rasmaniar et al (2022) found a significant increase in aspects of knowledge, attitudes, and behavior of adolescent posyandu participants after being given peer education. Research by Fitriani et al (2023) also found that peer education effectively increased awareness about stunting and its prevention among adolescents. Research by Pérez-Escamilla et al (2008) found peer-based nutrition education had a positive impact on dietary behavior and health outcomes among the Latino community. However, peer education methods also have disadvantages. One of them is the dependence on the quality and readiness of the peer educators themselves. If peer facilitators do not have a good understanding of the material or are not skilled in delivering information, the effectiveness of the intervention may decrease. In addition, not

all adolescents have good self-confidence or communication skills, which can hinder optimal knowledge transfer (Jafar et al., 2018).

Previous researchers have examined various stunting education interventions through a peer approach in increasing knowledge about stunting. However, a more comprehensive study through a scoping review approach is still needed. This is due to the absence of a systematic review that thoroughly maps the scope, approach, results and context of various studies exploring peer education interventions on stunting. Through a scoping review, it is hoped to gain a full understanding of the development of research that has been conducted, as well as identify knowledge gaps that still need to be addressed by future studies. The aim of this study is to assess the effectiveness of stunting education through a peer approach among adolescents.

METHODS

The method used in this study is a scoping review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR). The scoping review was conducted using an online electronic search engine from two databases, namely PubMed and Google Scholar. The databases were searched with keywords (“adolescents”), OR (“peer education”), OR (“knowledge about stunting”). data were filtered using inclusion criteria, namely 1) Articles were the results of primary research (quantitative) on stunting education interventions for peers; 2) The research subjects were adolescents; 3) Articles were available in Indonesian or English; 4) available in full-text; 5) Articles were published within the last 10 years (2015-2025); 6) Articles were published in scientific journals. While the exclusion criteria are 1) Articles in the form of narrative reviews, editorials, comments or literature reviews; 2) Studies that only discuss stunting without the involvement of peer

education interventions; 3) Articles that do not present results relevant to increasing knowledge related to stunting in adolescents; 4) Articles that cannot be accessed in full or are only available in abstract form.

The screening process began with a literature search on each database, namely PubMed and Google Scholar, using predetermined keywords. The articles obtained were then sorted to eliminate duplication with the help of Mendeley reference management software. After that, further exploration of the titles and abstracts of the articles was carried out to ensure the suitability of the topic to the focus of the study. This selection process refers to the previously established inclusion and exclusion criteria to ensure that only articles that are relevant to the topic of the effectiveness of peer education in improving stunting knowledge in adolescents are included in the review.

Articles whose titles and abstracts met the inclusion criteria then proceeded to the

content identification stage by reading the complete article to assess the suitability of the substance to the focus of the study. After all articles were obtained and screened, a thorough recheck of the eligibility of the selected studies was conducted to ensure consistency and relevance. The entire article selection and screening process was documented systematically and visualized in the PRISMA flow chart presented in Chart 1.

The results of the initial search of articles through PubMed and Google Scholar databases with predetermined keywords resulted in a total of 1,598 articles. Next, a stepwise selection process was carried out which included the elimination of duplicates, screening by title and abstract, and full review of the article content according to the predetermined inclusion and exclusion criteria. After a rigorous selection process, only 7 articles met the criteria and were declared eligible for further analysis in the data synthesis process of this scoping review.

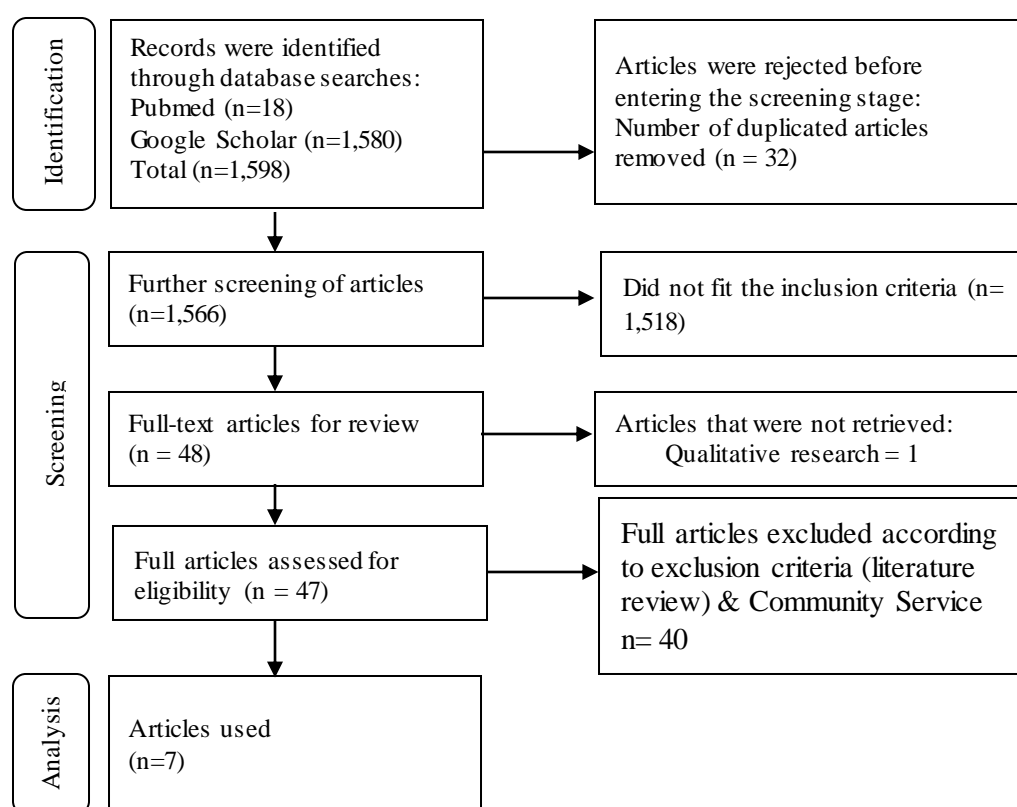


Figure 1. Flowchart

RESULTS AND DISCUSSION

Table 1 shows all articles included in this study and meeting the inclusion criteria published in the range 2015-2025 from various journal databases.

Table 1 Articles Included in Study

No	Author and Year	Methods Used	Sample	Results
1	Lubis et al (2022)	Quasi-experiment	60 students of Senior High School Negeri 1 Padangsidempuan	Health education through peer intervention significantly improved adolescents' knowledge about stunting. The mean value of adolescents' knowledge increased significantly after the intervention, with a p-value <0.05. This indicates that health education through peer methods is effective in providing information about stunting, including its causes, impacts and prevention methods. This increase in knowledge is expected to help adolescents take responsibility for preventing stunting in the children they will give birth to.
2	Jafar et al (2018)	Intervention Study	40 students of State Senior High School 16 Makassar	Peer educator training was successful in improving students' knowledge of nutrition at Makassar High School 16. After the intervention, the percentage of students with good knowledge increased from 17.5% to 70%, while moderate knowledge decreased from 45% to 25%, and poor knowledge decreased from 37.5% to 5%. Statistical analysis showed a significant difference (p = 0.000) between knowledge before and after the training
3	Nurlaela & Rasmaniar (2023)	Quasi-experiment	80 students (40 treatment, 40 control)	After the intervention, there was a significant increase in knowledge, with 95% of adolescent girls in the treatment group (peer education) showing sufficient knowledge, compared to only 27.5% before the training. In addition, positive attitudes increased from 37.5% to 95%, while good practices also increased significantly. Statistical tests showed significant differences between the treatment and control groups, with a p-value <0.05. These findings confirm the effectiveness of the peer education method in increasing adolescents' awareness and behavior in preventing stunting.
4	Rasmaniar et al (2022)	Quasi-experimentn	100 adolescents	Before the training, most adolescents had poor knowledge, attitudes and behaviors. After the intervention, there were significant improvements in all these aspects, with many adolescents reaching the good category. Statistical analysis showed significant differences between pre-test and post-test results, confirming the effectiveness of peer education in improving understanding of nutrition and stunting.

No	Author and Year	Methods Used	Sample	Results
5	Saputri et al (2025)	Quasi-experiment	45 adolescent girls	There was a significant increase in knowledge about stunting, with a mean score of pretest 14.42 and posttest 19.36. The results of the analysis obtained $p = 0.000$, which indicates that health education is effective in increasing adolescent girls' knowledge about stunting.
6	Sriwiyanti et al (2022)	Quasi-experiment	50 adolescent girls	There was a significant increase in knowledge about stunting, with a mean pretest score of 14.42 and posttest score of 19.36. The results of the analysis obtained $p = 0.000$, indicating a positive effect of the educational intervention.
7	Suryani et al (2022)	Quasi-experiment	100 adolescent girls	There was a significant increase in adolescents' knowledge of stunting after the intervention. The mean knowledge score increased from the pre-test of 77% to 98% in the post-test in the first group, while the other groups also showed improvement although not as significant. Statistical tests showed $p = 0.000$, confirming the effectiveness of the intervention through peer education in improving knowledge about stunting.

Education about stunting should be provided early, especially during adolescence (Adam et al., 2022; Kurniatin et al., 2023). This is because adolescents are considered not fully aware of the importance of fulfilling nutritional needs and providing appropriate stimulation (Kurniatin et al., 2023). Education about stunting is also very important when a woman is getting married, planning a pregnancy, during pregnancy, and after becoming a mother or having children under five (Puspita et al., 2024). One of the effective educational approaches in preventing stunting in adolescents is peer education (Lubis et al., 2022).

The results showed that peer-based stunting education is an effective approach in improving adolescents' knowledge about stunting. Through this intervention, adolescents gain a better understanding of the concept of stunting, ranging from causes, long-term impacts, to prevention strategies. The peer delivery method was proven to create a more open and interactive learning atmosphere, which facilitated the process of receiving information. Adolescents tend to be more

responsive to information delivered by peers due to a sense of equality and emotional closeness (Lubis et al., 2022; Sriwiyanti et al., 2022; Suryani et al., 2022).

Adolescents have a strategic role as agents of change in stunting prevention efforts, especially because they are in the transition phase to adulthood and future parents. This position makes adolescents a very important group to be empowered early on. Through proper education, adolescents are not only recipients of information, but also able to disseminate knowledge to their peers in their daily social environment. In the context of stunting education, adolescents can be the spearhead in shaping collective awareness about the importance of nutrition, healthy eating and preventive lifestyles from a young age. Their ability to communicate equally with their peers makes information easier to receive and understand. In addition, adolescents who are involved as peer educators are proven to be able to encourage positive behavior change, both individually and in groups (Siswati, 2018).

Indicators of success in peer education include not only increased knowledge, but also

changes in adolescents' attitudes and behaviors, often referred to as KAP (Knowledge, Attitude, Practice). Several studies have shown that increased knowledge on issues such as stunting goes hand in hand with positive changes in adolescents' attitudes towards health and nutrition. Moreover, these changes can contribute to better practices in daily life, such as healthier food choices and awareness of the importance of nutrition. The link between increased knowledge and long-term behavior change is significant, as better knowledge often encourages adolescents to adopt healthier lifestyles, which in turn can reduce the risk of nutritional problems and improve overall health (Jafar et al., 2018; Suryani et al., 2022).

Peer education has several advantages. Adolescents tend to be more receptive to information from peers due to emotional closeness, the use of a more relaxed language, and similarities in experience and social environment (Suryani & Lundy, 2022). Through this approach, health messages about the importance of balanced nutrition, healthy eating, and the role of lifestyle in stunting prevention can be more easily understood and applied. In addition, peer education also increases active participation of adolescents in disseminating information and building collective awareness, thus creating a more supportive environment for stunting prevention (Lin Khariyetni Lase et al., 2023). According to Sriwiyanti et al (2022), the peer education approach has several advantages in stunting prevention efforts. Peers are more easily accepted by the target group because they have similar age, experience, and a more relaxed and familiar communication style.

Using peer education has many benefits, mainly because this approach allows the delivery of information in a more relaxed, easy-to-understand and relevant way for the target group. This method increases participant engagement as they tend to be more comfortable discussing with peers than with formal authorities. In addition, peer education

can also increase the effectiveness of learning as it uses more familiar language and experiences that are closer to everyday realities. It also encourages active participation, strengthens mutual trust and creates a supportive and non-judgmental learning environment (Lubis et al., 2022).

Through a peer education approach, adolescents can share information and experiences with each other, which makes the learning process more interactive and relevant to them. Research shows that when adolescents engage in peer-led education programs, they are more likely to understand and internalize information about the importance of balanced nutrition and the impact of stunting on their health (Nurlaela & Rasmaniar, 2023). In addition, interactions within peer groups create a supportive environment where adolescents feel more comfortable asking questions and discussing health issues, including stunting. Thus, peer education not only increases knowledge, but also builds collective awareness among adolescents about the importance of meeting nutritional needs to prevent stunting (Jafar et al., 2018).

While peer education has many benefits, there are drawbacks. One of them is the dependence on the quality and preparedness of the peer educators themselves. If the peer facilitator does not have a good understanding of the material or is unskilled in delivering the information, the effectiveness of the intervention may decrease. In addition, not all adolescents have good self-confidence or communication skills, which can hinder the optimal knowledge transfer process (Jafar et al., 2018). External factors, such as support from teachers, schools or health workers, also play a major role in the success of peer education programs. Without adequate support from both educational and health institutions, the program may not be able to achieve its goals optimally, given that collaboration and synergy between various parties is essential to create a supportive learning environment (Siswati, 2018).

While peer education has been shown to be effective in improving adolescents' knowledge about stunting, there are still a number of gaps in the research that need to be addressed. One of the main weaknesses is the lack of long-term studies that measure the sustained impact of these interventions on the direct prevention of stunting, particularly in later life phases such as pregnancy and birth. In addition, most of the existing studies are still centered on limited populations, such as secondary school students in specific regions, and therefore do not represent the full social, cultural and geographical diversity of Indonesia. Therefore, it is recommended that future studies expand the coverage area and target population, including adolescents in remote areas or communities with a high risk of stunting. Future studies should also use a more robust design, such as a large-scale controlled trial with long-term monitoring, to evaluate the effectiveness of the intervention more thoroughly and in-depth.

CONCLUSION

The peer education method has been shown to be effective in improving adolescents' understanding of stunting. This method is more easily accepted due to emotional closeness, more familiar language, and more effective communication compared to conventional approaches.

The government and educational institutions need to develop and expand peer education programs in the school curriculum as part of adolescent health promotion. Train more youth facilitators to disseminate information on the importance of nutrition and stunting more widely. Develop a digital platform or nutrition education application that can be accessed by adolescents to get information about healthy eating and stunting prevention.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in writing this article. The entire process of preparing and writing this scoping article was carried out independently without any influence from any party, either financially or non-financially, which could affect the results or interpretation of the study conducted.

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587

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